

Application No. 10/707,469  
Technology Center 1792  
Reply dated February 18, 2008  
In Response to Office Action dated October 16, 2007

**REMARKS**

As of the filing of the present Office Action, claims 1-20, 33, and 34 were pending in the above-identified US Patent Application. In the Office Action, the Examiner rejected all of the claims under 35 USC §103 as being unpatentable over U.S. Published Patent Application No. 2002/0172838 to Rigney et al. (the "Rigney application," now issued as U.S. Patent No. 6,586,115) in view of U.S. Patent No. 6,492,038 to Rigney et al. (the "Rigney patent"). Applicants respectfully request favorable reconsideration and allowance of claims 1-20, 33, and 34.

Applicants' claimed invention involves codepositing at least one oxide in addition to yttria-stabilized zirconia (YSZ) (or another multiple-oxide compound) by evaporating the corresponding carbide(s) of the additional oxide(s), which Applicants teach will "dissociate during evaporation to form the oxide if sufficient oxygen is present within the vapor cloud to oxidize the metal dissociated from the carbide." [0008].

In the "Response to Arguments" section of the Office Action, the Examiner argued:

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The Rigney patent discloses depositing carbide-based precipitates with YSZ in order to prevent grain growth and pore redistribution that would increase the thermal conductivity of the TBC (Col. 4, lines 60-65). The Rigney patent also discloses that the ingot material, which is evaporated by electron beam, could contain a carbide (Col. 5, lines 55-60). Thus, it would have been obvious to one of ordinary skill to provide an ingot containing a carbide as suggested by the Rigney patent as the metal source in the Rigney application since the evaporation by electron beam would be sufficient to dissociate the metal from the carbide compound, which would then be oxidized in the presence of oxygen to form the third metal oxide. (Emphasis added.)

The Rigney patent teaches nothing about an electron beam dissociating a metal atom from a carbide compound, and more importantly fails to teach or suggest oxidizing the dissociated metal atom to deposit the oxide of the metal - a process that requires different thermodynamic conditions than required to deposit the original carbide compound. Instead, the Rigney patent merely discloses evaporating a carbide compound to deposit precipitates of the carbide compound, and clearly does not teach or suggest providing the required thermodynamic conditions (sufficient oxygen within the vapor cloud) to intentionally oxidize the metal dissociated from the carbide. Stated another way, nothing in the Rigney patent suggests providing an oxygen level in

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excess of that required to simply reform the TBC material (YSZ) dissociated during evaporation. In fact, to do so would be counterproductive to the very thing the Rigney patent desires to deposit: carbide precipitates. Therefore, the prior art is completely lacking in any suggestion to carry out the process being claimed by Applicants, and the only motivation of record for Applicants' claimed invention is Applicants' own teachings.

In view of the above, Applicants again respectfully request withdrawal of the §103 rejection and favorable reconsideration of their patent application.

Should the Examiner have any questions with respect to any matter now of record, Applicants' representative may be reached at (219) 462-4999.

Respectfully submitted,



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